

## **ABSTRACT**

An antenna has a central core with a central coupling region. A pair of helix antenna lines is formed a surface of the central core. A balun transformer is formed on a circuit board and electrically coupled to the pair of radiating antenna lines. Wherein, the circuit board has a protruding structure to affixing into the central coupling region of the central core. A signal input/output (I/O) end of the antenna is at another end of the balun transformer. The balun transformer preferably uses the LC resonators in two paths with a desired equivalent resonant length, so as to preferably produce the difference by half wavelength.